# Backyard Woods

*bring your vision to life*

United States Department of Agriculture

Forest Service

Northeastern Area
State & Private Forestry

NA-IN-02-05

January 2005

Backyard Woods
*bring your vision to life*

INTRODUCTION

*page 4*

1

MAKE A MASTER PLAN

**Family Activity: Taking a Trail Tour**

*page 6*

2

WORK SAFELY WITH A CHAIN SAW

**Family Activity: A Log Home**

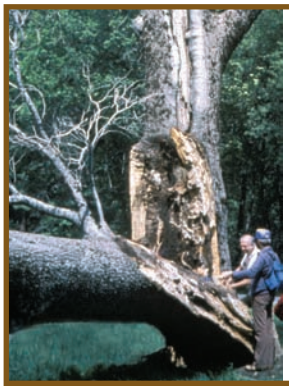
*page 8*

3

PROTECT YOUR PROPERTY FROM WILDFIRE

**Family Activity: Fire Audit**

*page 11*



4

IDENTIFY AND MANAGE HAZARDOUS DEFECTS IN YOUR TREES

**Family Activity: There's a Fungus in Your Woods**

*page 15*

5

KEEP YOUR WOODS HEALTHY

**Family Activity: Insects Are Everywhere!**

*page 18*

6

ATTRACT WILDLIFE

**Family Activity: Apartment for Rent**

*page 21*

*"Your woodlot is, in fact, an historical document which faithfully records your personal philosophy."*

*Aldo Leopold*

7

PROTECT CLEAN WATER

**Family Activity: It's Raining Cats and Dogs!**

*page 24*

8

HELP YOUR PREFERRED TREES GROW

**Family Activity: Leave It to Me!**

*page 27*

9

PRUNE YOUR TREES

**Family Activity: Old as the Hills**

*page 30*

10

PLANT TREES

**Family Activity: Trees Grow and Grow**

*page 32*

11

GROW AND COLLECT SPECIAL FOREST PRODUCTS

**Family Activity: Bird Cone Treats**

*page 35*

12

GENERATE WOOD PRODUCTS

**Family Activity: Finding Firewood**

*page 38*

# *Bring Your Vision to Life*

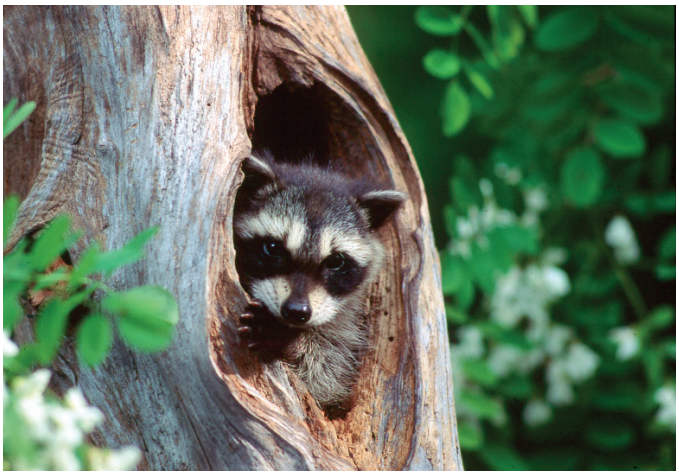
From lush temperate rainforests in the Pacific Northwest to the semitropics of Florida, the woods are alive. Wooded land doesn't have to cover hundreds or thousands of acres to harbor richness and diversity of life. Your backyard woods can be filled with crawling creatures, fascinating mushrooms, towering trees, and other living things.

Robert Karpa, Masterfile

Perhaps you dream of sitting on a deck, overlooking lush green scenery. Or you may want to attract birds, deer, or other animals, or harvest special forest products or mature trees. You may even want to improve your land for your children and grandchildren. Whatever your vision, with a little planning and work, your backyard woods can be a true jewel to you, your family, and the wild creatures that depend on it.

This booklet was written for the 6 million landowners in the United States who own 1 to 10 acres. While such acreages may seem small, they have big impacts. Backyard woods collectively add up to millions of acres.

Masterfile

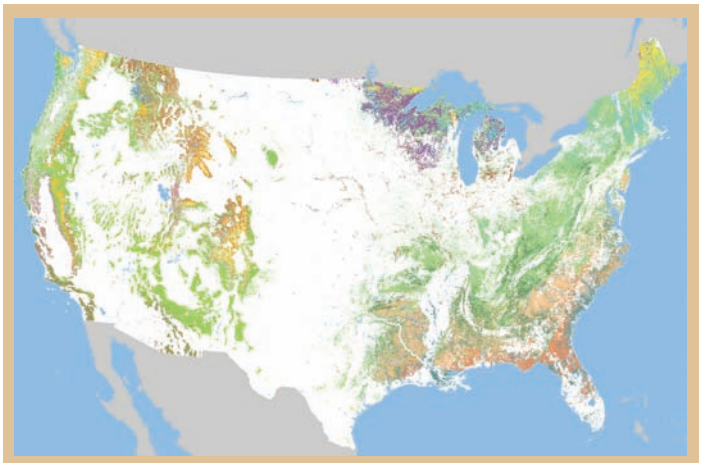


Steve and Dave Maslowski

In some areas, backyard woods are a dominant part of the landscape.

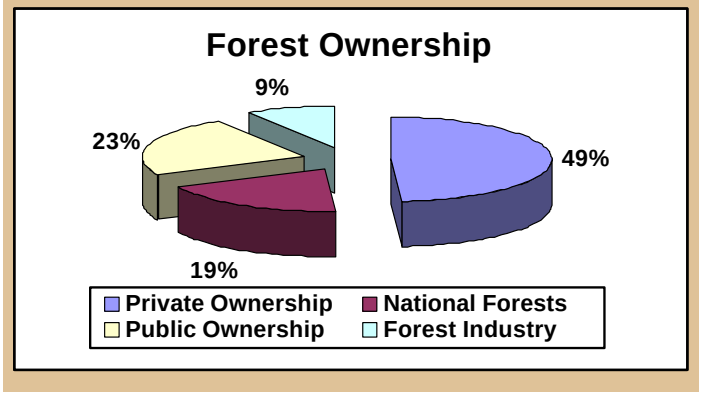
This booklet and the companion tip sheets will help you plan and manage your backyard woods. The effects of the things you do to manage your woods extend far beyond your property boundaries. Every bird that hatches in your woods and every tree you plant makes the landscape, as a whole, a richer place.

Larry Lefever, Grant Heilman Photography



## Did You Know . . . ?

Forests cover 1/3 of the United States. Ownership is diverse, with 49 percent in private ownership, 19 percent in national forests, 23 percent in other public ownership, and 9 percent held by forest industry. Backyard woods owners comprise 60 percent of all U.S. private forest landowners.



Tony Sweet and Marian Kraus, Digital Vision

The information presented in the "In the Forest" sections will broaden your perspective from your backyard woods to the larger forest landscape.

William M. Ciesla, Forest Health Management International, www.forestryimages.org

To read companion tip sheets with more in-depth information, go to www.arborday.org/backyardwoods.

Ron Francis

## In the Forest

Forest land in the United States is owned publicly and privately. The U.S. Department of Agriculture (USDA) Forest Service manages 147 million acres of forest land represented here by the Roosevelt National Forest in Colorado. The 10 million private forest landowners in the United States own 363 million acres of forest land. Just like your backyard woods, large forests provide scenic beauty, recreation, wildlife habitat, clean water, wood products, and many other benefits.

# Develop your vision for your backyard woods

## In Your Backyard Woods

Picture this: You're lying in a hammock on a warm October day. Nearby, a fall colored tree explodes with migrating birds gorging themselves on

Larry Lefever/Grant Heilman Photography

abundant fruit. Farther out in your yard, a mixture of maple and oak trees warms the sky with its hues of orange and brown. A sudden snap of twigs alerts you to three deer moving at the edge of your woods. Before you fall into your afternoon nap, you glimpse the firewood you cut this morning, stacked and ready to chase the chill from the coming winter.

A dream? Not really. But you'll need to tend your backyard woods to get results like this. A plan will help you focus on what is truly important to you and your family. It will also help you organize the work so that it's manageable and fits your budget and available time.

### Getting Started

Before you start to alter your woods, sit down and talk with your family. Discuss questions such as these:

- Why do we have this land?
- What do we like about it?
- What things do we want it to produce?
- What do we want it to look like in 5, 10, or 20 years?

The answers will help you develop a vision for your backyard woods. The more focused you are, the easier it will be to identify activities that will help you meet your objectives. Remember, your woods change overtime like all living things.

Kevin Dodge, Masterfile

*Whatever you do, have fun doing it. Include your family and your neighbors, if possible. A large task is easier with partners!*

### Next Steps

Your backyard woods plan should yield a list of actions to take to reach your goals; however, you don't have to figure out how to do everything yourself. There are many local forestry related organizations you can contact for information.

There are many resources to help you find out more about land management. Read and use this publication along with the companion Backyard Woods Tip Sheets. Access our Web site at www.arborday.org/backyardwoods. You can contact your local Cooperative Extension Service, County Conservation District, Master Woodland Manager Program, Woodland Owners Association, Woodland Owners Cooperative, State Division of Forestry, or look in your phone book for forestry, tree services, or other similar local organizations for more information and assistance about trees or land management.

*Talk with your neighbors about working together to have a natural resource professional look over your properties.*

Dennis Haugen

*When you're cutting firewood, you are also producing fuel, thinning your woods, making brush piles for rabbits, and probably enjoying the outdoor exercise!*

## Did You Know . . . ?

Today, the United States has the same amount of forest land as it did in 1920.

## In the Forest

Foresters plan how to manage public and private lands. Developing a forest land plan requires time, patience, and compromise. A good forest plan considers objectives of all of the users and the entire forest community. For example, the USDA Forest Service produces plans for national forests on a 10 year cycle. The process involves local communities, national organizations, public hearings, and written comments. These plans consider public safety, wildfire protection, recreation, forest health, wildlife, water, tree growth, special forest products, and wood products. You may consider many of these factors in planning to meet your objectives for your backyard woods.

## Family Activity: Taking a Trail Tour

Children love to help parents or other adults make plans. They may decide that your woods needs a large swing set in the shape of a rocket, or a series of secret tunnels underground. (Well, no one ever said such ideas were practical!) But children have their own ideas of how your woods and yard should look and what they should be used for. After all, it's their backyard woods, too.

Dennis Haugen

Involve children early in the planning process by taking them on a trail tour. Your goal is to help them get comfortable with and learn about nature. As you hike, stop to look at the things that make nature so exciting—cones, bones, feathers, mushrooms, flowers, and rocks. Share a sense of wonder and curiosity. And the best part is, you don't have to know what everything is. Speculate! Use field guides and Web sites to chase down information about some of your more intriguing finds. (Field guides can be found in libraries, bookstores, and on Web sites.)

Soon, your whole family will be able to share in the planning process to shape a woods that harbors many amazing things!

Dave Powell
www.forestryimages.org

# *Danger—Always think safety*

## In Your Backyard Woods

As you work in your woods, you are going to come across a task that will be accomplished faster and easier with a chain saw. You may need to remove some pine trees killed by bark beetles, cut firewood, or cut down a large oak that is diseased. If you have never used a chain saw or had hands-on chain saw training, get the training before you start. Even if you have taken training, but don't feel comfortable with the task, seek professional help to do the job. Instead of jumping right in, it is best to resist that can-do attitude and reflect on the job ahead.

Ontario Forestry Safe Workplace Association

*Proper safety equipment is critical.*

Forest Industry Safety & Training Alliance

*Felling a tree is one of the most difficult activities you can do in your woods. You can't learn everything you need to know about cutting down a tree by reading. Plan to take a hands-on tree cutting course as soon as you can.*

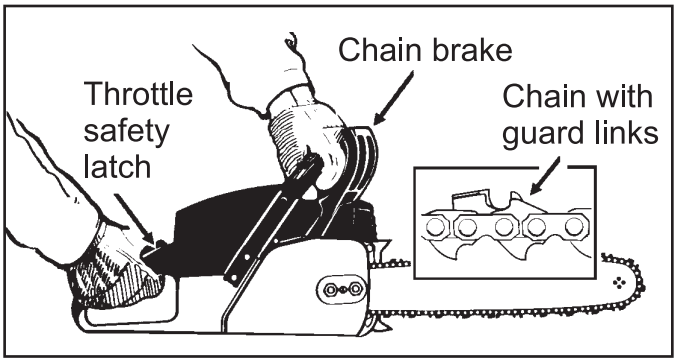
### Chain Saw Safety Equipment

Safety comes first when you use a chain saw. In the hands of a professional, it deserves respect, and in the hands of a rookie, it can be deadly. Never use a chain saw unless you are wearing appropriate clothing and gear that protects your head, hearing, eyes, face, hands, legs, and feet.

- A hard hat outfitted with earmuffs and a screen type full-face shield is the best protection for your head, hearing, eyes, and face.
- Wear gloves when you operate a chain saw.
- Leg protection is absolutely necessary. Chaps, leggings, or protective pants are options. Be sure they are long enough to protect the ankle.
- Chain saw protective boots, or at least an above-the-ankle leather work boot, are a must to protect your feet.

When selecting a chain saw, consider horsepower, bar length, and safety features.

- Horsepower—Use a saw with a power head rated at 3.8 cubic inches or less.
- Bar length—You should be able to perform all your tasks with a bar length between 16 and 18 inches.
- Safety features—Use a chain saw with a chain brake, throttle safety latch, and chain with guard links.




Ontario Forestry Safe Workplace Association

### Did You Know . . . ?

The chain saw is the most dangerous hand tool you can purchase. Each year in the United States, 40,000 injuries or deaths are caused by chain saw use.

## Safe Chain Saw Operation

Always engage the chain brake at these times:

- When you start the saw.
- When you take one hand off the saw to do something.
- When you take more than two steps while the saw is running.

Start the saw safely by using one of the following two techniques:

Ontario Forestry Safe Workplace Association

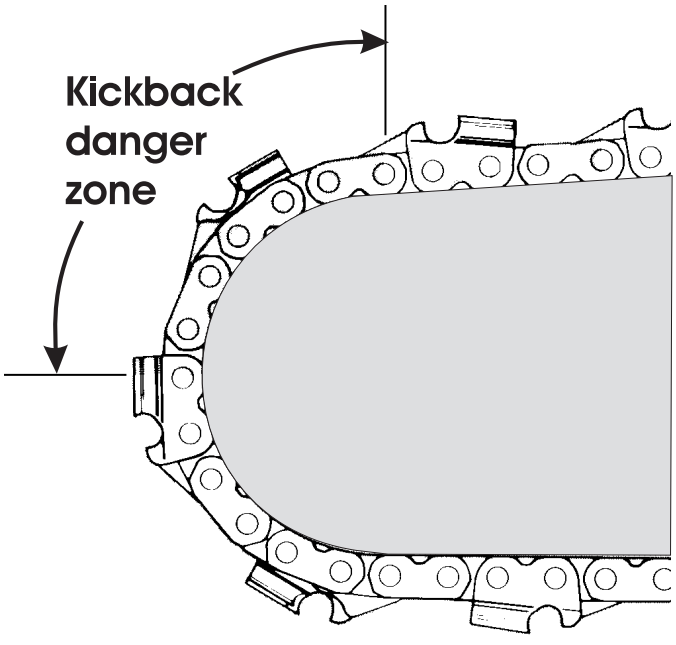
- Place your left hand on the front handle. Hold the back of the saw tightly between your legs. Pull the start cord (after engaging the choke, if necessary) using a fast, but short, stroke.

Ontario Forestry Safe Workplace Association

- Place the saw on the ground. Place the toe of your boot through the back handle to hold the saw down. Hold the front handle with your left hand. Pull the start cord using a fast, but short, stroke.

Kickback causes some of the worst accidents. Kickback is the sudden and dangerous recoil of a chain saw that occurs when the chain is forced to a sudden stop. The most common way kickback happens is when the upper tip of the bar touches a tree, log, or branch. Another way kickback can happen is when a log or a limb pinches the top of the bar and chain while cutting from below with the top of the bar. Kickback can be prevented by taking these precautions:

- Avoid letting the upper tip of the bar touch solid wood.
- Trim branches and small trees in your cutting area.
- If you have to cut a log from below, do it in two stages: first cut from above, then from below to meet the top cut cleanly.
- Never cut above shoulder height.
- Keep the saw close to your body and don't reach out with it.
- Start every cut under full throttle.
- Keep the chain sharp.




Ontario Forestry Safe Workplace Association

Remember to approach your forestry related tasks with the right preparation, right tools, and right training. Also understand that some jobs may be beyond your ability. Know your limits and be ready to hire professionals to help you achieve your goals for your backyard woods.

Forest Industry Safety & Training Alliance

## In the Forest

Trained professional loggers fell trees a difficult and dangerous job in public and private forests. To emphasize this point, the following quote is from the Ontario Forestry Safe Work Place Association handbook *The Cutting Edge:*

"To achieve the goal of working safely, you need three things: knowledge, skill, and safe working habits.

Knowledge: You need to know what each task consists of, you need to know how to do it, and you need to know what hazards are involved.

Skill: You need to have the ability to physically perform the task in the right (safe) way.

Safe Working Habits: Most of all, you need to have (or to develop) safe working habits that mean you automatically do the job right every time without having to think about it."

If professional loggers are trained to take this much precaution when they use a chain saw, shouldn't the occasional chain saw user be even more cautious?

## Family Activity: A Log Home

Ask: Did you know that log homes are busy places?

You'll need:

- Magnifying glass
- Insect and/or mushroom field guides (These guides can be found in libraries, bookstores, and on Web sites.)

*Logs are taken over by decomposers. These creatures break down the log and help return its nutrients to the soil.*

Explain that dead trees or some trees you cut down can spend the next several years as log homes! Find a decaying log in your woods and look for signs of life, using a magnifying glass to get a closer look. You may see holes in the bark made by birds in search of bugs or by the bugs themselves leaving the tree. (Note: If you live in areas with venomous snakes or biting insects, make sure they aren't inhabiting the log you plan to study!)

Carefully peel back a small part of the bark. Look for evidence of tunneling insects. Sometimes, they leave debris underneath the bark. Look for long white or black strings, which are fungi decomposing the wood. Look also for mushrooms on the log, indicating fungi. Use a field guide to identify these organisms. Notice the smell of rotting wood.

# *Prepare before wildfire strikes*

## In Your Backyard Woods

On average, more than 80,000 wildfires burn about 3.6 million acres across the United States annually. Every year, families lose their homes and possessions to the ravages of these wildfires. But losses can be minimized if you take steps to protect your home before a wildfire threatens your property.

James N. Long, Utah State University, www.forestryimages.org

### Understanding Wildfire

It helps to know why fire behaves the way it does. Fire needs fuel, oxygen, and heat to start and burn. Without all three of these factors present, a fire won't burn.

Allen Gallamore, Colorado State Forest Service

Kari Brown, National Interagency Fire Center Image Portal www.wheremedia.com/nifc/index.html

*Fuel can be any living or dead material that will ignite and burn. Fuels that lay on the ground allow fire to move along. Fuels that are above the ground, such as shrubs, small trees, and low-hanging branches, help fire spread upward.*

### Protecting Your Home

You can take steps to protect your home and property from wildfire. An untreated wood shake roof is the number one cause of home loss from wildfire. Consider class-A asphalt shingles, slate or clay tiles, metal, or concrete products when constructing or replacing the roof on your home.

Jim Strawser/Grant Heilman Photography

*This is an example of firewise landscaping. Your landscape doesn't have to be barren to be safe. Many common plants naturally resist fire.*

### Did You Know . . . ?

Wildfires peak at different times across the country. Forests in the Northeastern United States are at greatest risk in spring and fall. Wildfires peak in the West during summer. In Southern States, such as Texas and Florida, wildfires can occur throughout the year.

Bryan Day, National Interagency Fire Center Image Portal www.wheremedia.com/nifc/index.html

Create a safety zone—an area that resists fire because of the absence of fuels—around your home and other structures. A safety zone should be 30 feet wide on gently sloping ground and 100 feet or more on slope grades 30 percent or greater downhill from any structure. A green lawn in the safety zone can serve as a good fuel break as long as it is kept clear of all leaves, twigs, and other debris. Keep flammable debris from accumulating near your buildings and under decks and porches.

Outside the safety zone, you should prune branches away from power lines. Items that can easily catch fire, such as firewood and gas tanks, should be stored at least 30 feet away from structures.

Also remember how isolated you may be. Firefighters need to find your home quickly. At the entrance to your property, display your address so it can be read from the main road.

Narrow, winding driveways increase your privacy but can hamper access for fire trucks. Bridges, too, can prove to be a barrier, unless they are strong and wide enough to allow emergency vehicles to cross.

Chris Coulon, USDA Natural Resources Conservation Service

*Trails or roads in your woods can act as firebreaks, keeping small fires from spreading.*

**Wildfire: Are You Prepared?**

Reduce your risk by preparing now before a wildfire strikes. Post fire emergency telephone numbers and plan escape routes away from your home. Meet with your family to decide what to do and where to go if a wildfire threatens your property.

You can also contact your local fire department or forestry office for information about fire regulations.

With thorough planning, you have a good chance of enjoying the beauty of your backyard woods with minimal threat from wildfires.

Bryan Day, National Interagency Fire Center Image Portal www.wheremedia.com/nifc/index.html

## In the Forest

The heart and soul of fire fighting on most wildfires in the United States are provided by the 26,000 volunteer rural fire departments across the country. Most wildfires are put out by volunteer rural fire departments before they burn a large area. Through partnerships with the USDA Forest Service and State forestry agencies, these local fire departments receive necessary training, fire equipment, and personal safety items; and new fire departments are organized in unprotected communities. The Federal Excess Personal Property Program is an example of one of these programs. Excess personal property is acquired from various Federal agencies by the Forest Service and is loaned to State forestry agencies and rural fire departments for use in providing forest and rural community fire protection. The local rural volunteer fire department is the first line of protection for your home and property.

## Family Activity: Fire Audit

Engage your family in auditing your woods for fire safety. Explain that being ready for a fire is the best protection. You may wish to do the audit as one big group, or split into teams. Be sure to give meaningful roles to children. There is nothing a child likes better than finding a wrong and righting it!

Meaningful roles for children might include determining distances using pacing and estimating tree height or height to the first tree branch using a person of known height.

1. Using your pace to determine a distance:

    - Find a straight and level place at least 100 feet long.
    - Place a stake in the ground or make a mark with chalk on pavement. Place another stake or make another mark 100 feet from the first stake or mark.
    - You will be counting paces as you walk. A pace is two steps long. If you start walking with your right foot, you will count each time your left foot hits the ground.
    - Walking at a normal speed, count how many paces it takes to go 100 feet.
    - Repeat a few times to make sure your numbers are consistent.
    - Divide 100 by the number of paces to get your pace length in feet.

Example: If you took 20 paces to cover the 100 feet, then 100 feet divided by 20 paces would equal a 5-foot pace length. To determine if your safety zone was at least 30 feet wide, you would need to walk at least 6 paces.

2. Determining branch height or tree height using a person of known height:

    - Stand a person whose height is known next to the tree you are measuring.
    - With your arm straight, hold a pen or pencil vertically at eye level.
    - Move away from the tree until the person standing at the tree fits exactly between the top and bottom of the pen or pencil.
    - Count the number of pen or pencil lengths from the ground to where branches begin or to the top of the tree.
    - Multiply the number of pen or pencil lengths by the height of the person standing next to the tree to get the branch or tree height.

Example: If you are 5 feet tall, the child would need to have at least 2 pen or pencil heights without branches on the tree trunk to have the 10-foot minimum branch-free trunk in the fire safety zone.

You'll need:

- A copy of the Fire Audit Sheet
- Pens or pencils
- Tape measure
- Pruning shears

## Fire Audit

1. Determine your minimum safety zone: 30 feet_____ 100 feet_____

   * If your house is on flat or gently sloping ground, your safety zone is 30 feet.

   * If your house is on a 30 percent or greater slope, your safety zone is 100 feet or more downhill from your house.

2. The safety zone is covered by a green lawn without sticks and leaves. _____ yes _____no

   If no, plant the lawn and/or pick up sticks and other debris.

3. Trees in the safety zone are pruned to a height of about 10 feet. _____ yes _____no

   If no, prune trees. Be sure to leave 50 percent of the tree height in live branches to maintain healthy tree growth.

4. Tree crowns in the safety zone are at least 16 feet apart. _____ yes _____no

   If no, cut down individual trees with crowns that are too close.

5. Firewood and other burnable materials are at least 30 feet away from buildings. _____ yes _____no

   If no, move firewood or other items.

6. The gutters, eaves, and roof are clear of leaves or other debris. _____ yes _____no

   If no, remove the leaves and debris.

7. There are branches around your chimney, dead branches hanging over your roof, or branches that may come in contact with power lines. _____ yes _____no

   If yes, prune trees. Note: Hire a professional to prune branches near power lines.

8. The house number is posted in large letters and numbers at the start of the driveway. _____ yes _____no

   If no, purchase or make a reflective house address sign.

9. The driveway is at least 12 feet wide and has a vertical clearance of 15 feet; there is a turnaround at the house. _____ yes _____no

   If no, make access easier.

10. Emergency fire numbers are posted by the phone; the fire escape plan is practiced. ____ yes ____no

    If no, post numbers and plan and practice your escape route now!

# *Prevent personal injury and property damage*

## In Your Backyard Woods

Trees make the outdoors a wonderful place to be. They burst with color in the spring and fall, and provide habitat for nature's smaller creatures. Trees shade lawns and houses and harbor tree forts. Trees are splendid things indeed.

Sometimes, though, structural defects in trees can cause problems. Weakened limbs, for example, can fail and cause injury or damage. Yet many structural defects can be detected and corrected if trees are inspected, or prevented through proper tree planting and pruning practices.

### Inspecting Your Trees

Trees in high-use areas and within striking distance of a target should be inspected every year and after severe storms. A target can be a vehicle, building, or a place where people gather such as a bench, picnic table, trail, or fire pit. You should examine all parts of a tree, including the roots, lower main stem where it joins the roots, upper main stem, branches, and branch unions. Use binoculars to see high branches.

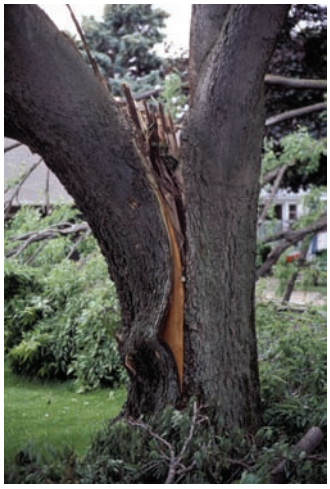
### Major Tree Defects

Major types of tree defects include dead wood, cracks, weak branch unions, decay, cankers, root problems, and poor tree form.

Dead wood is often dry and brittle and cannot bend in the wind. All dead wood is unpredictable. Dead branches and treetops that are already partially broken off are especially dangerous.

Jill Pokorny

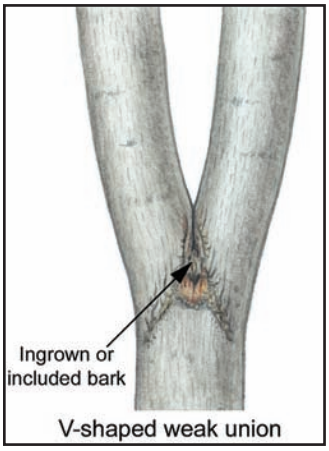
*Dead or broken branches are high-risk defects and should be removed immediately in high-use areas.*



*Cracks are extremely dangerous because they indicate that the tree is already failing.*

Cracks are deep slits through the bark, extending into the wood of the tree. They weaken the tree, making it unstable.

Places where branches are not strongly attached to the tree are called weak branch unions. Trees with a tendency to form upright branches, such as elm and maple, often produce weak branch unions.




Decay, in its early stages, does not mean a tree is hazardous. Advanced decay, however, (wood that is soft or crumbly, or a cavity where the wood is missing) can create a serious hazard.

A canker is a sunken area on the stem or branch caused by wounding or disease. A canker increases the chance that a stem or branch will break at that point.

### Did You Know . . . ?

The baldcypress, found in swamps all over the South, naturally resists decay.

Symptoms of root problems include soil mounding, twig dieback, dead wood in the crown, and off-color or smaller-than-normal leaves.

Harrison Soil & Water Conservation District, Mississippi

*Trees with root problems may blow over in windstorms or fall without warning.*

Poor tree form can result from years of storm damage, unusual growth patterns, improper pruning, and other types of damage that create weakness or structural imbalance within the tree. Such trees may be interesting to look at but can be structurally defective.

*In this case, a serious crack, wood decay, and conks (produced by decay fungi) are all present on the main stem. This tree is located within striking distance of a target, poses a safety risk, and should be removed.*

Carefully examine trees for the presence of multiple defects that are touching or are close to one another. If more than one defect occurs on the stem or branches, assume the tree or branch is at high risk for failing.

## Corrective Actions

There are four recommended action steps to correct safety risks:

- Move the target.
- Prune the tree.
- Convert the tree to a wildlife tree.
- Remove the tree.

If you are not sure about a tree's condition, talk with an arborist or consulting forester.

Steve Katovich

*To create wildlife habitat, dead trees may be left standing if they will not hit a target.*

Dennis Haugen

*A campsite in the San Juan National Forest in Colorado.*

## In the Forest

The USDA Forest Service and the U.S. Department of Interior's National Park Service manage developed recreational sites within national forests and parks to help ensure public safety. Both agencies have established hazard tree management policies and standards, requiring periodic, thorough, and documented tree inspections in developed recreation sites. Many State forests and parks have similar tree risk management plans in place. Just as the management practices in these recreation areas help keep visitors safe, your backyard woods should be properly managed to provide a safe environment for family and friends.

## Family Activity: There's a Fungus in Your Woods

Wood decay fungi produce fruiting structures that produce spores (the "seeds" of fungi). These fruiting structures can be soft, fleshy, and temporary (we call these mushrooms) or hard, woody, and persistent (we call these conks). Fungi are important because they decay wood, recycling nutrients to help other trees and plants grow.

Look for mushrooms and conks around dead or dying trees (use the ideas in the Mushroom and Conk Scavenger Hunt, below). Mushrooms and conks might be growing from decaying roots or on the bark itself.

### Mushroom and Conk Scavenger Hunt

Form mushroom teams and show each other the mushrooms you find, including these:

* A white mushroom
* An orange mushroom
* A conk that looks like a turkey tail
* A mushroom with a long stem
* A mushroom that glows in the dark
* A spotted mushroom
* A conk bigger than your fist
* A mushroom that looks like an umbrella
* A mushroom that looks like a sponge

**WARNING:**

Do not eat any wild mushroom without first obtaining an identification from an expert. Toxins are found in many different kinds of mushrooms. Most poisonous mushrooms are not fatal to humans, but they may produce nausea, diarrhea, or hallucinations when eaten. Only six species of North American mushrooms, out of several thousand species, are considered deadly poisonous.

# Help your woods resist pest outbreaks

## In Your Backyard Woods

Insects and microorganisms abound in your backyard woods. These tiny creatures recycle nutrients, decompose plants, control other organisms, and affect your woods over time. A woods without insects and microorganisms would not be healthy; in fact, it would cease to function!

However, epidemics of tree insects and microorganisms can hurt your woods. You should be prepared to protect your trees. Your first focus, however, should be on making changes to your woods that make it more resilient and less susceptible to pests in the first place.

Bill Beatty, Wild and Natural, WV

*Most leaf-feeding insects are not pests, so you do not need to spray when a few caterpillars are feeding on your trees. Usually a tree can have half of its leaves eaten before any damage or growth loss occurs.*

### Preventing Pests

The best time to think about pests is before they attack your woods. A woods with a diversity of tree species that are well adapted to the site has fewer pest outbreaks. If your woods has only a few tree species, plant other native types. Trees become stressed when they are over crowded and are more likely to be attacked by pests. Thinning and harvests can keep your woods vigorous.

"Pest" is a general term that includes insects, plant pathogens (fungi, bacteria, or viruses that cause tree diseases), and other living things that compete with human desires. Organisms become pests when their numbers are high enough to cause damage. Less than 1 percent of insect species are considered significant pests.

### Identifying Problems

Often the first clues of a pest problem are symptoms such as red needles, yellowing leaves, or wilting foliage. Note the pattern of these symptoms on individual trees. Then, consult reference materials to see if you can identify the pest or seek professional assistance.

Dennis Haugen

*Not all forest health problems will be easy to figure out. Some trees have problems that are the result of multiple factors. These trees are suffering from oak decline caused by drought, insects, pathogens, and other factors that stress trees.*

### Treating Pests

If you do have a pest outbreak in your backyard woods, don't automatically think about spraying pesticides. Various other control options exist.

- Infested trees may be cut and destroyed to keep the problem from spreading.
- Natural enemies of the pest should be conserved.
- Insect traps and barriers may be effective if your pest problem is only impacting a few trees.

- Pesticides are another option to consider if warranted. As with any pesticide, follow the label directions and apply it only for the pests for which it is registered.

Bill Beatty, Wild and Natural, WV

*Natural enemies can keep potential pest populations at bay. Here a ladybug beetle larva feeds on aphids.*

*Pruning the infected lower branches of white pines can reduce damage caused by white pine blister rust.*

## Did You Know . . . ?

The gypsy moth was intentionally imported into Massachusetts in 1869. A French naturalist attempted to interbreed gypsy moths with silkworms to develop a silk industry in North America. The experiment failed and gypsy moths escaped. Gypsy moths have spread slowly throughout the Northeastern States over the subsequent 100 years, and are beginning to invade Midwestern and Southeastern States now.

*A spray plane applies an insecticide to control gypsy moths on the Nantahala National Forest in North Carolina.*

## In the Forest

Forest managers control pests on public and private forests to protect economic, environmental, and social values. Many potential pest problems are avoided and forests stay healthier using management practices that allow forests to recover quickly from stress. When managers discover serious pest problems, however, they apply suitable treatments to reduce the pests while sparing other living things. This holistic, ecological approach helps assure the long term productivity and health of the forest.

## Family Activity: Insects Are Everywhere!

Build an insect trap with your family (see instructions). Hang it on a tree. Check your trap after a few days. If you find creatures inside, use an insect field guide to try to identify them.

You'll need:

* 2-liter, empty plastic bottle
* Duct tape
* String
* Overripe banana, cut into small pieces
* Scissors
* Insect field guides (They can be found in the library, bookstores, and on the Web.)

Lacy L. Hyche, Auburn University
www.forestryimages.org

*Cut the bottle off about 1/3 from the top. Plop in pieces of an overripe banana, other smelly ripe fruit, or peanut butter. Insert the top portion upside down, back into the bottle, and use duct tape to secure it. Tape string on the sides to make a handle, and your trap is ready to go!*

Insects are among the most numerous creatures on the Earth, and there are many places to find them. Try looking . . .

* Under wood and rocks
* In compost piles
* In the soil
* On leaves and twigs
* Near lights at night
* In grassy areas (for jumping insects)
* In the air (for flying insects)

Discuss whether insects are "good" or "bad." Point out that people decide which insects are pests and which aren't, based on what's "bugging" them. Most insects do important work, such as recycling nutrients, pollinating plants, and preying on other insects.

## Pesticide Precautionary Statement:

Pesticides used improperly can be injurious to humans, animals, and plants. Follow label directions and heed all precautions on the label. Store all pesticides in original containers and out of reach of children. Apply pesticides selectively and carefully. Do not apply a pesticide when there is danger of drift to other areas. After handling a pesticide, do not eat, drink, or smoke until you have washed. Dispose of empty pesticide containers properly.

NOTE: Registrations of pesticides are under constant review by the Federal Environmental Protection Agency. Consult your local county agricultural agent or State extension agent about restrictions and registered uses of particular pesticides.

# *Woods provide food, water, shelter, and space*

## In Your Backyard Woods

Like humans, animals need food, water, shelter, and space. Your backyard woods has all these things, and is probably already hosting a lot of wildlife. In some woods, animals merely survive; in others, they thrive. You can do things to attract and support more and varied wildlife species.

Steve and Dave Maslowski
Maslowski Wildlife Productions

### Planning Your Wildlife Habitat

Planning is key to helping you roll out the red carpet for wildlife. Start by learning what types of wildlife live in your area. This will clue you in to the possibilities for your woods.

Arthur C. Smith III, Grant Heilman Photography

*Not all wildlife will make your woods their permanent home. Some will come to raise young, while others may simply pass through on their way to other places.*

Once you know what you want and what you have, you can identify ways to enhance wildlife habitat. You already know that food, water, shelter, and space are the cornerstones of any wildlife habitat. And as you may have guessed, changing the amount or distribution of one or more of these can make your woods a more welcoming place for wildlife.

### The Backyard Woods Diner

Food attracts wildlife, and your backyard woods diner is open around the clock. A variety of native trees, shrubs, and herbs will satisfy even the most finicky eaters. Providing a smorgasbord is the surest way to draw the customers you seek.

*Bird feeders attract many eager customers like cardinals and blue jays. Place the feeder near your home, so you can enjoy seeing the birds. Joining Project Feeder Watch is another way you can help birds. Counting the number of birds visiting your feeder and sending the information to scientists will help their bird research.*

Steve and Dave Maslowski
NACD, Backyard Conservation CD

### Wet 'n Wildlife

If you have a stream, pond, lake, or wetland in your woods, count yourself fortunate. Most types of wildlife are drawn to water.

### The Creature Comforts

Shelter offers safety from predators, as well as nesting and resting spaces. Wildlife don't require deluxe accommodations—a leaf, fallen log, or hole in the ground will do the job nicely. Piles of brush or rocks are great hiding spots for squirrels, chipmunks, rabbits, snakes, and other small animals. Dead and dying trees make especially great shelters, if they are not hazardous.

Dennis Haugen

*You can buy or build birdhouses and other boxes to add nesting cavities to your woods.*

Jennifer E. Dacey, University of Rhode Island
www.insectimages.org

### Space—The Third Dimension

Like a high-rise hotel, your woods extends vertically from the tree roots to the lofty treetops. The number of stops along the way could determine whether it rates as a one- or a five-star ticket to wildlife abundance. Adding vegetation of varying heights adds space for living things.

*Some wildlife simply need more room to roam. Your woods may not be large, but if it's adjacent to others, you can join forces and create a multiplier effect. Talk to your neighbors about working together to manage your lands.*

### Did You Know . . . ?

Since the 1930s, whitetail deer, elk, pronghorn, and wild turkey populations have grown from near extinction to hundreds of thousands of elk and pronghorn and millions of deer and turkeys.

Melvin J. Baughman, University of MN Extension Service

### In the Forest

Each year, millions of people visit the Nation's public and private forest lands to enjoy wildlife. Forest managers do their best to balance the needs of wildlife with those of humans. They create small openings, protect wetlands and other resources, put up nest boxes, and cooperate with neighboring landowners to enhance wildlife and habitat.

Managing lands for wildlife is a challenge. Some wildlife need a lot of space and large expanses of forest to be connected for travel corridors. This need for wildlife corridors magnifies the importance of everyone's backyard woods. The actions you take in your backyard woods can complement larger forests and provide great spaces for wildlife.

Dean Biggins, U.S. Fish & Wildlife Service
www.images.fws.gov

## Family Activity: Apartment for Rent

Build an animal apartment house! Find an area in your woods that is away from human traffic. Explain that animals need shelter, just like people do. Some animals live underground, but others look for cracks and holes above ground.

You'll need:

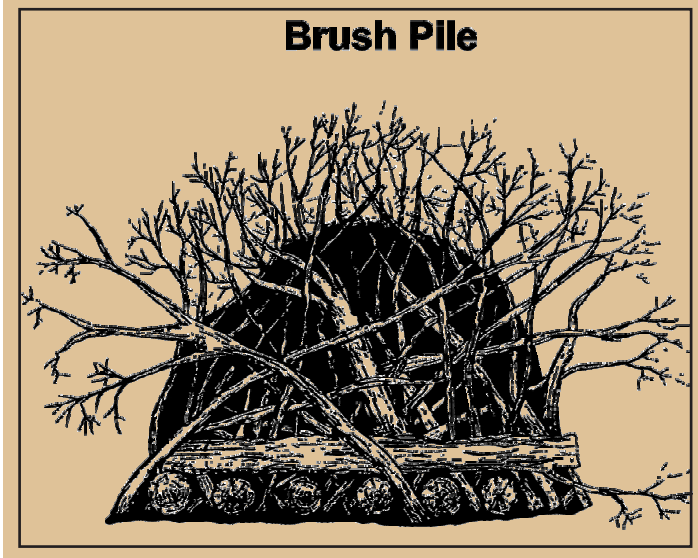
* Branches, sticks, and rocks

* Heavy work gloves

Use branches, sticks, and rocks to build a habitat for small animals. Pile the branches, using rocks or logs for support and layering. Make sure everyone is fully involved!

If you're really adventurous, build several apartment houses throughout the woods.

Melvin J. Baughman, University of MN Extension Service




State of Minnesota, Department of Natural Resources
Copyright 1987, Reprinted with Permission

Visit them occasionally. Do you see any evidence of animals? Chipmunks and squirrels often will sit on the branches and eat seeds, so look for seed debris. Also, look for tracks and animal droppings—rabbits leave lots of traces. You might see a snakeskin or even a snake.

(**Caution**: Don't actually dig for evidence of snakes in your piles, especially if you live in areas with venomous snakes!)

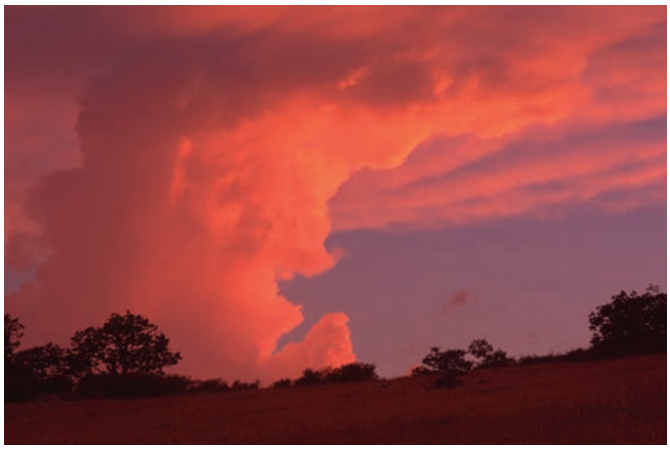
***Congratulate your family for helping to make your woods a welcoming place for wild creatures.***

# *Provide a living filter*

## In Your Backyard Woods

Did you know that your backyard woods is an important source of clean water? Even if a stream doesn't flow through your woods, the rain that falls on your land will reach a lake or stream sooner or later.

The path water takes through your woods is critical. Water reaching the ground under your trees will either be absorbed into the soil or flow over the surface. Water absorbed by soil is filtered and cleaned before it slowly moves into streams and lakes. Woods absorb rain well because leaves protect the soil surface, slow the flow of water, and feed the fungi and other soil organisms that make the soil porous.



USDI Bureau of Land Management

*No matter how hard it rains, water always enters the soil on undisturbed tree-covered land.*

### Clean Water

If soil does not absorb rain as fast as it falls, water will run over the surface, erode the soil, and carry sediment to a stream or lake. Sediment is the most serious pollutant your backyard woods can produce. Roads and trails, especially those that cross a stream, and uncontrolled livestock access are the two most common causes of soil erosion and water pollution. Both activities compact soil spaces and remove the leaf layer. Roads and trails can be installed so they do not deliver soil to streams or lakes, and livestock should be excluded from the woods or limited to short periods of time.

Natural Areas/Index CD, Forest Preserve District of Dupage County

*Soil erosion does not occur in a woods protected by a layer of leaves.*

Your woods can help clean water polluted by other land uses, such as cropland, roads and trails, lawns, and pastures. As water moves over the surface from other land uses, it sinks into the soil in your woods, depositing soil particles on the surface. As the polluted water moves through the soil, tree roots and the millions of organisms living in the soil act as a "living filter," removing excess nutrients and harmful chemicals from the water before it reaches groundwater or surface water. If you have a stream or lake on your land, the best thing you can do to prevent water pollution is to plant or maintain trees and other vegetation as a buffer between the water and other land uses. Lawns are ineffective buffers because of their shallow roots.

Dennis Haugen

*A forest buffer not only cleans polluted water, but also is home to a wide variety of plants and animals.*

Gina Childs

*Changing how land is used has a profound impact on how water moves. Converting woods to other uses, such as roads, lawns, and parking lots, not only removes trees, but affects water quality by changing the path water takes to streams or lakes.*

## Taking Action

By taking a few simple steps, you can ensure that your backyard woods will continue or improve its production of clean water. For example:

- Keep the woods you have and plant more trees.
- Keep livestock out of your woods, or limit their time there.
- Cover trails and roads with wood chips or gravel, especially on steep sections or on approaches to stream crossings.
- Be sure that water flowing off roads and trails enters your woods rather than going directly into a stream or a ditch that flows into a stream.
- Maintain at least a 30- to 100-foot wide tree buffer next to any water on your property.
- Properly dispose of chemicals, oil and gas.

To protect water quality, always follow the label directions when applying lawn fertilizer, herbicides, and pesticides. Before applying fertilizer, have your soil tested by the Cooperative Extension Service to determine how much fertilizer is needed, if any.

Ron Francis

## In the Forest

Melvin J. Baughman, University of MN Extension Service

The greatest water quality threat in the United States is nonpoint source pollution. Nonpoint source pollution includes soil, nutrients, animal waste, pesticides, and other substances from many places over the landscape. Soil is the principal nonpoint pollutant from forests. Nationwide, only 3 to 9 percent of the total nonpoint pollution comes from forest management practices such as road construction, timber harvesting, planting site preparation, and fire line clearing. Even though forest land is not a major pollution source, pollution from forest land practices should be controlled because forested areas have high water quality and small changes in this quality can have an adverse impact. Best Management Practices have been developed and adopted by the Forest Service, State forestry agencies, and forest industry. These BMPs are very similar to the practices recommended for your backyard woods.

## Family Activity: It's Raining Cats and Dogs! (Okay, It's Just Water)

The amount of rain or snow available to trees each year varies by the local climate, but in areas where trees naturally grow they need at least 20 inches annually. Find out how much water your backyard woods gets by making a rain gauge.

You'll need:

* Ruler
* Scissors
* Clear packing tape
* Glass wide-mouth jar with a wide bottom.

To make a rain gauge, use a 6-inch ruler or cut a 12-inch ruler in half. Place the ruler inside the jar and stand it vertically; then tape it into place so the numbers can be read from the outside of the jar. Place your rain gauge outside on the lawn or in a garden where it can collect rain. Shortly after a rain, record the precipitation to the nearest 1/10 or 1/8 inch. Keep the results in a weather journal, if you wish.

In your yard, newly planted trees and older trees during a drought need enough water to survive. Helpful tree watering hints: (Check local water restrictions first.)

- During hot, dry periods, deep water your tree(s) twice a month by moistening the soil to about 12 inches deep.
- Water using a sprinkler until your rain gauge measures 3-4 inches of water has fallen.
- Reduce evaporation loss by watering early in the morning

Linda Haugen

## Did You Know . . . ?

In the West, more than 90 percent of streamflow originates on high altitude woodlands, many of which are on national forests.

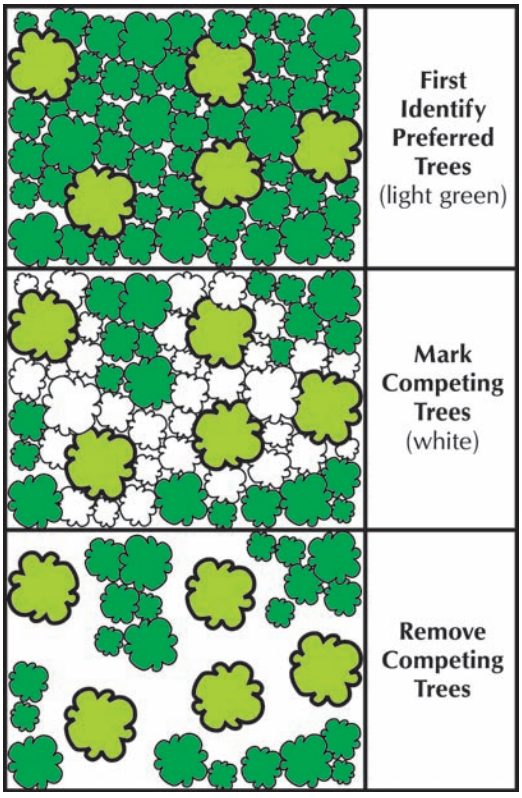
# Select trees for wildlife, aesthetics, and products

## In Your Backyard Woods

Many homeowners want their backyard woods to be a place of tranquility and enjoyment. Others value wildlife or may want to produce wood products for their own use or sale. You may be able to meet these goals and others by favoring individual trees. This technique provides a systematic way to improve wildlife habitat, enhance the beauty of a forest, and produce valuable wood products.

### Why Favor Preferred Trees?

Favoring preferred trees helps them grow, maintains a variety of trees in your woods, and increases plant growth under the trees. Eliminating competition from other trees increases light, moisture, and nutrient availability for a preferred tree so it will be healthier and grow faster. Favoring individual trees is similar to a gardener thinning a row of carrots.



Natural Areas/Index CD
Forest Preserve District of Dupage County

*A tree crown with a great deal of space to grow can add aesthetic appeal with its unique shape and branching pattern.*

Basically, it involves selecting a preferred tree and then removing other trees that come within 15 feet of its crown.

### Picking Your Preferred Trees

A preferred tree should help you accomplish one or more of your backyard woods objectives. A sugar maple provides attractive fall foliage, sweet sap for maple syrup, and boards for woodworking projects. A spruce tree produces food and shelter for wildlife and branches for holiday wreaths. Select a variety of tree species to maintain diversity, increase tree health, or enhance wildlife habitat.

Jerry A. Payne, USDA Agricultural Research Service
www.forestryimages.org

Paul Wray, Iowa State University
www.forestryimages.org

Paul Wray, Iowa State University
www.forestryimages.org

Bill Cook, Michigan State University
www.forestryimages.org

*Preferred trees that produce abundant nuts or seeds can be a major food source for wildlife.*

You can begin identifying preferred trees when they are about 25 feet tall. At this height, they are beginning to compete with each other.

*Preferred trees for wood products should have a large healthy crown, straight trunk, and no branches on the lower 9 feet of the trunk, and be a high-value commercial species.*

### Uses for Competing Trees

What you do with competing trees depends on their value, size, and quantity. Valuable trees can be sold for wood products; less valuable trees can be used for firewood, fence posts, or other uses on your property. The best use for some of these trees is girdling them and leaving them standing to provide benefits for some wildlife species, or cutting them and leaving them on the ground to recycle their nutrients into the soil.

Grant Hellman, Grant Hellman Photography

*A cut tree on the ground provides unique growing conditions for mushrooms, insects, and other organisms. It also provides wildlife habitat.*

Girdling is a way to kill a tree and leave it standing. Girdling involves the complete removal of a 3- to 5-inch band of bark around the trunk with a hatchet or ax. Girdling can also be accomplished by encircling the main stem with two parallel chain saw cuts 1 inch deep and 3 to 5 inches apart. Do not girdle near a target.

### In the Forest

Public and private forests have management plans that guide decisions on which trees to favor for various uses. Foresters manage the type of trees, their age, when they will be harvested, and how the new forest will be established. Different methods of harvesting are used to help the new forest grow and successfully compete with other vegetation. Frequently, these forests are intended to produce income, but many of them are managed to enhance wildlife and aesthetic benefits with no anticipated financial return. Foresters managing these large forests are attempting to provide multiple uses and products.

### Did You Know . . . ?

The world's tallest tree is California's coastal redwood. This towering tree reaches a height of 360 feet.

USDA Natural Resources Conservation Service

Plants/Index CD, Fermi National Accelerator Lab

## Family Activity: Leave It to Me!

Landowners often choose preferred trees because of their beauty. Celebrate their crowning glory—the leaves—with your family. Explain that leaves use energy from the sun to convert water and carbon dioxide into sugar for their food. Insects and other organisms also eat the sugar in the leaves. Other animals eat these organisms. Pretty soon, a complex food web has formed, all from one tree. To celebrate these miraculous food machines, you'll need:

- Glycerin (available at craft stores)
- Clear contact paper
- Scissors

- If you have broad-leaf trees that turn color, collect the prettiest leaves. Preserve them by submerging the leaves (with stems attached) into a mixture of 1 part glycerin and 2 parts water. Let soak for a few days, until the leaves are soft and pliable. Remove them from the liquid and allow the leaves to air-dry on a towel for several days. After they dry, arrange them in a vase and display like prized roses.
- Make place mats that remind you every day of the important job leaves do in producing food! If your crowning glories are needle-leaf trees, pick a few long segments with needles (you can also do this with broad leaves). Press the leaves in a telephone book weighted with other books for several days. Next, carefully arrange small branchlets on a piece of clear contact paper. Cover with another piece, press out air bubbles, and trim the edges.

# *Prune early, prune often, prune for safety*

## In Your Backyard Woods

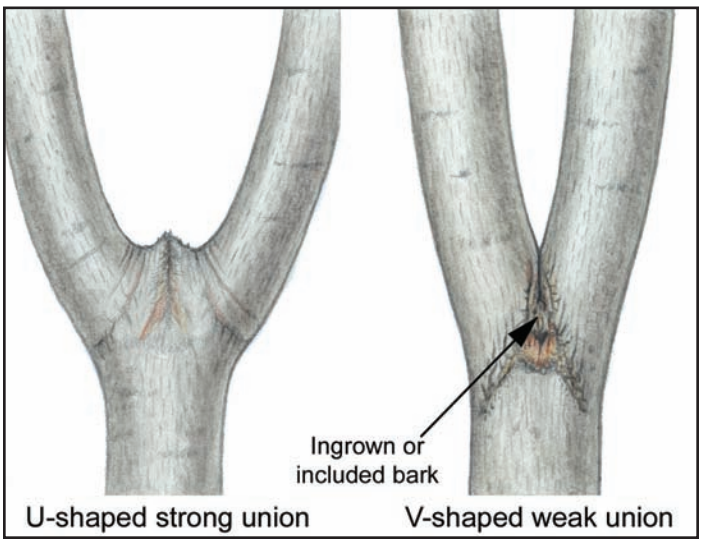
All woody plants shed branches naturally—branches die, decay, and fall off. Sometimes they are removed violently by the wind, leaving large, ragged wounds. You can improve a tree's strength, longevity, and value by periodically pruning its branches.

### Why Prune?

Prune trees for safety, health, aesthetics, and value.

Dennis Haugen

- Safety—Remove branches that could fall and cause injury or property damage, and remove lower branches on trees near your home to reduce fire danger.
- Health—Prune broad-leaf trees to develop strong structure that reduces the likelihood of damage during severe weather by favoring U-shaped branch angles. Also, remove diseased or insect-infested wood, as well as crossing and rubbing branches.
- Aesthetics—Prune trees to improve tree form and flowering.
- Value—Prune to produce knot-free wood for high-value lumber and veneer.



Melvin J. Baughman, University of MN Extension Service

*You can prune trees to increase their health, fire resistance, and value for wood products.*

### Pruning Basics

Prune young trees to strengthen their form, or increase their value, or both. As trees mature, prune to maintain tree health and safety.

Dennis Haugen

*Needle-leaf trees (such as pines and spruces), which have branches in whorls around the trunk, don't need structural pruning as broad-leaf trees do. Needle-leaf trees are pruned to increase their fire resistance, increase their wood product value, and reduce losses from some diseases.*

Dead branches can be removed at any time of the year. Pruning needle-leaf trees during the dormant season minimizes sap and resin flow. Prune most broad-leaf trees during the dormant season.

**Treating Wounds**

Although it looks bad, sap flowing from pruning wounds generally is not harmful. In fact, trees produce sap, gums, and resins to combat disease. Wound dressings will not stop decay or cure diseases. The only benefit of wound dressings is to prevent introduction of Dutch elm disease and oak wilt, which are transmitted by infected insects feeding on fresh tree wounds. If possible, prune oak and elm trees during the dormant season to prevent the spread of disease and the need for wound dressing.

Chris Coulon, USDA Natural Resources Conservation Service

## In the Forest

Trees are pruned in public and private forests to increase value. Pruning is the forester's "value added" effort, because it produces higher quality boards and veneer. Pruning is time consuming and, therefore, expensive. Foresters select only the highest value tree species on the best growing sites for pruning. Although pruning is done primarily to enhance tree value, it can fulfill other objectives such as increasing fire resistance, eliminating safety hazards, improving access, and reducing certain diseases.

## Did You Know . . . ?

The eastern white pine is so naturally tall, straight, and clear of lower limbs when it grows in the woods that it was frequently cut for ship masts during the 1700s and 1800s.

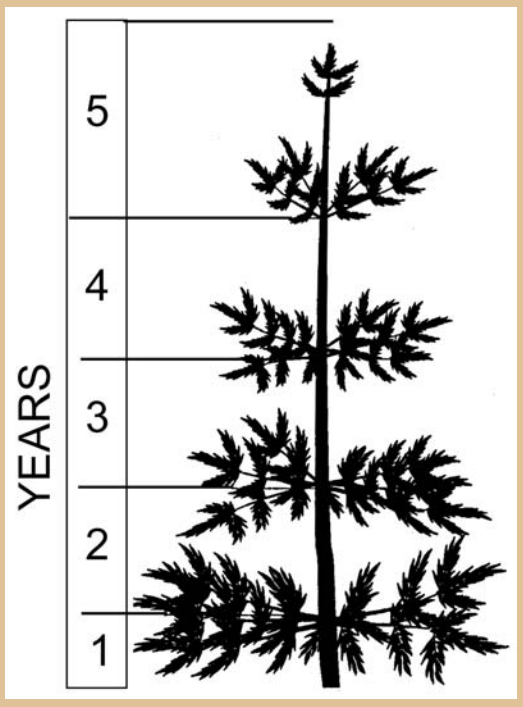
## Family Activity: Old as the Hills

Learn how old a needle-leaf tree is by counting the branch whorls! Many needle-leaf trees put on one whorl (circle of branches around the stem) each year. Find some young pine, fir, or spruce in your woods with your family. (This doesn't work with cedar or hemlock trees.) It works best on trees under 30 years of age. Count the whorls and *voila*! You have the age of a needle-leaf tree.

Now, search your woods together to find a needle-leaf tree that is . . .

- ❑ The same age as the child.
- ❑ Just a baby!
- ❑ Equal to your age minus the child's.
- ❑ The oldest one.

Point out that trees in your woods can be many different ages. Believe it or not, size does not always correspond to age. Trees able to compete successfully for sunlight, nutrients, and water grow taller and put on more girth than their counterparts. Sometimes the large trees may not be the oldest, just the best competitors.



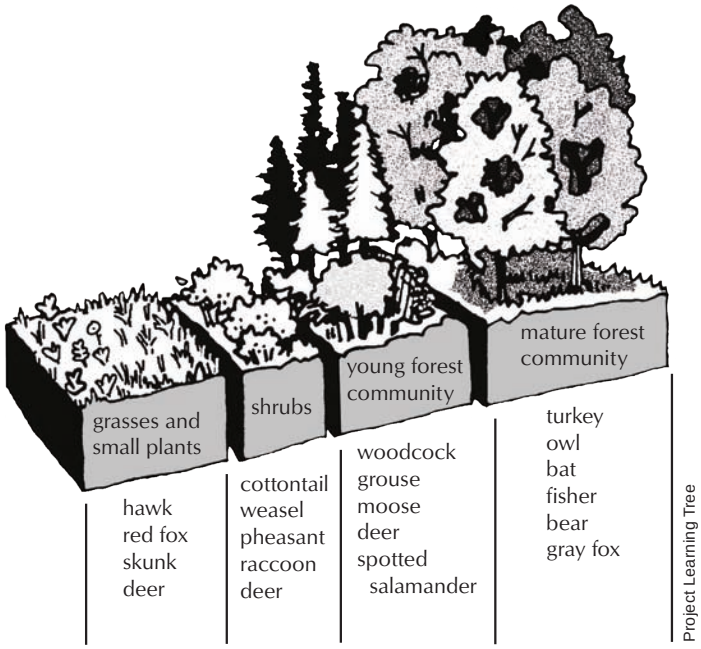

University of Minnesota Extension Service

# *Expand your woods for the future*

## In Your Backyard Woods

Planting trees is a way to renew or expand your woods with the trees you need to meet your goals and speed up nature's process. If trees grow naturally in your part of the country, open fields or areas where trees have been removed will become a woods again when left undisturbed for a long period of time. Seeds from trees near these open areas will begin to grow and shade out the grasses and other plants. As these "pioneering" trees grow tall and mature, more shade tolerant trees begin to grow under them. As the older trees die, the smaller trees take their place. This process of change is called succession.

Peter Christopher/Masterfile Corporation




Project Learning Tree

*Over time, a woods is constantly changing. As trees and plants change, so do the wildlife that inhabit and use them.*

Tree planting speeds up succession and allows you to select the types of trees and habitats you want in your new woods. Think of it as a long-term investment. Many generations will enjoy the trees you place in the ground today.

### How Do You Start?

The best way to begin is to ask yourself: "Why am I planting trees?" and "What do I hope to accomplish?" Most landowners have more than one objective, but try to focus on one main goal. Otherwise, you'll end up haphazardly sticking trees into the ground. Different goals mean different approaches.

Steve & Dave Maslowski, NACD, Backyard Conservation CD

*If you want to attract wildlife, plant trees and shrubs that provide food and cover.*

### Matching Trees to Your Land

Different trees need different soils and amounts of water and sunlight. Is your soil texture mostly sand (coarse), loam (medium), or clay (fine)? Is the area wet or dry? Does your site receive full, partial, or very little sunlight? Generally, it's best to plant native, or local, species. Native trees are adapted to the site conditions in your part of the country.

Steve & Dave Maslowski, Maslowski Wildlife Productions, OH

*If you want nice views, use a wide variety of native species, including wildlife shrubs, and plant trees randomly or in curved rows.*

**Before** **After**

*If you want to improve water quality, plant long-lived trees in buffer zones near streams, lakes, and wetlands. A dramatic transformation can happen in 2 to 3 years.*

## Getting Ready to Plant

Plant trees in areas where they will receive full sun for several hours each day. Avoid planting trees near grasses, weeds, and existing woody cover; or remove these competitors by rototilling, hoeing, or using herbicides before planting trees.

Next, you'll need to figure out how closely together to plant your trees. Trees need room to grow and spread. When they are crowded, they don't grow as tall and their trunks stay smaller.

## Caring for New Trees

Since you are planting young trees, they need your help to survive their first 3 to 5 years in your backyard woods. The type and amount of care they need will vary by your location. Cultivation, herbicides, mulches, and landscape fabrics are used to control grass and weed competition. Fencing, physical barriers, repellents, and habitat manipulation provide protection from deer. Manipulating habitat, encouraging predation, and using tree shelters are ways to control rodent damage. If practical, water newly planted trees.

### Did You Know . . .?

On average, over 4 million trees are planted per day for reforestation and conservation in the United States.

*Applying herbicide to a patch around a tree is one way to control weed and grass competition.*

Dennis Haugen

## In the Forest

Tree planting by public and private forest managers is done to meet specific objectives. A frequent objective is to convert nonforest land, such as pasture or cropland, to forest. Tree planting allows trees to quickly capture the site after a forest disturbance like fire, windstorm, volcanic eruption, or harvest. Also, planting is a way to add tree species that are not present, or to introduce genetically superior hybrids and strains. Tree plantations are established by planting a single species at optimum spacing to increase wood production. Plantations are costly investments and commit managers to subsequent operations (for example, weed control, fertilization, pruning, thinning, and insect control) to protect that investment.

## Family Activity: Trees Grow and Grow

Plant a tree with your family using the techniques explained earlier. Allow a child to help pick the tree, dig the hole, and plant the seedling. Make sure his or her job is important!

You'll need:

- Trees to plant
- Hoes, shovels, and other planting tools
- Camera with film

John A. Hutmacher, USDA Forest Service

Use the planting as an opportunity to explain that trees may start out very little, but they get big after many, many years. Trees grow from the top, not the bottom—if you paint a mark on a tree 5 feet above the ground, it will still be at this height years later. Examine the main leader of the tree—the branch that grows straight toward the sky and is the main stem. The bud on the tip of this branch is the "control center" for the tree, telling it to grow straight and tall.

Next, take a photo of your child standing next to the planted tree. After the photo is developed, you both can work together to make a frame for it from construction paper. Display it prominently. You may wish to repeat the photo shoot each year at the same time, perhaps on the first day of school or on Arbor Day. How many years does it take for the tree to "outgrow" the child?

# *Let your imagination run wild*

## In Your Backyard Woods

Berries, nuts, and tangles of plants grow in your backyard woods. But did you know that many of these things can be used in your home or sold? They have decorative value and, yes, may even have economic value. The term "special forest product" is used to describe things generated from plants or fungi that you can harvest in your woods, including these:

Barry Runk/Grant Heilman Photography

- Foods—mushrooms, nuts, fruits, and sap;
- Medicinals—parts of herbs, shrubs, and trees;
- Decoratives—stems, branches, flowers, cones, and buds;
- Handicrafts—bark, burls, conks, and stems.

On some sites, special forest products are more valuable than timber products! Your woods can yield many special items. Take a few hours to walk through your woods to look for them; then let your imagination run wild!

Bill Beatty, Wild and Natural

Paul Wray, Iowa State University
www.forestryimages.org

### Foods

Berries, wild fruit, mushrooms, nuts, and maple syrup are a few examples of the many food items that may grow in your woods. Berries and other fruits can be harvested 2 to 3 years after planting. Mushrooms may be edible or poisonous, so learn to tell the difference! Nuts commonly used for food and commercial purposes include beechnut, hazelnut, golden chinquapin, hickory, pecan, pinyon pine, and black walnut.

Peggy Castillo

*Maple syrup is made by boiling maple tree sap until it thickens into sweet syrup. Sugar maple is the primary maple used to make syrup, although black, red, and silver maple can also be used. About 30 to 40 gallons of sap are needed to make 1 gallon of pure maple syrup.*

Stephen Bratkovich

*Shiitake mushrooms can be grown on logs cut during the dormant season from decay-free trees.*

### Medicinals

Your backyard woods may contain plants that can be used for medicinal purposes. About 25 percent of all medicines used in the United States contain active ingredients extracted from plants. Over 100 trees, shrubs, and herbaceous plants—which are thought to have medicinal benefits, but have not been proven safe by the U.S. Food and Drug Administration—are currently sold as dietary supplements. Ginseng and goldenseal are examples of two popular dietary supplements.

### Decoratives

You can decorate your home with stems, branches, cones, vines, leaves, and small plants found in your backyard woods. You can also sell them to craft stores or craft wholesalers. Some products include wreaths, dry floral arrangements, and fresh floral displays.

### Did You Know . . . ?

Pioneers made a coffee substitute by roasting seeds of the Kentucky coffeetree.

## In the Forest

People gathered special forest products in the woods long before they harvested timber. The most popular gathering places today are Federal, State, and other public forests. Many forests sell permits and provide information on how to identify and harvest special forest products. Some public forests are even managed specifically for them. Foresters manage these lands to increase the quantity and quality of the products, to control the harvest, and to prevent damage to the forest.

### Handicrafts

The woods in your backyard may also contain a host of material that can be handcrafted by you or sold to crafters to make objects ranging from pencils to walking sticks. Parts of trees such as limbs, branches, twigs, bark, and knotholes can all be used to produce things of beauty.

Harlan Petersen, University of Minnesota Extension Service

Larry Lefever, Grant Heilman Photography

*Marketing matters, especially with special forest products. Markets can vary from roadside stands to international markets. They are usually "niche" markets, small and very specialized.*

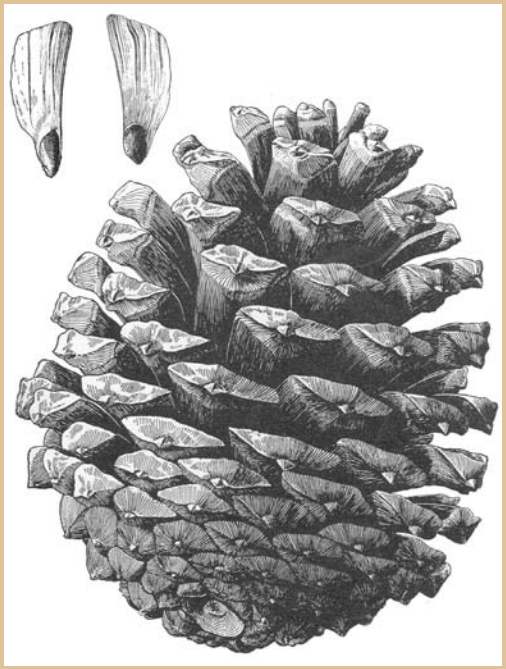
## Family Activity: Bird Cone Treats

Pick up some cones from your woods with your family. Examine one of the cones closely. Where is the food that a squirrel wants? Carefully pull a seed out of the cone, showing where the seed is located. Explain that the woody cone is just the vehicle that seeds ride in. (Note: Depending on the time of year, cones may have already released their seeds.)

You'll need:

- Vegetable shortening
- Peanut butter
- Birdseed (black oil sunflower seeds or a blend with other seeds)
- String or yarn

Cones can be made into many decorations that beautify your home. But they also make great bird feeders! Take a cone and attach string or yarn as a hanger. Dip the cone in a blended mixture of peanut butter and shortening (1 part to 1 part). Next, roll the cone in birdseed. Place your cone treat on a tree or bush, and watch birds come from near and far to enjoy the combination of fats and protein. You may even wish to decorate an entire tree for the birds during the holidays!



# *From firewood to high-quality veneer*

## In Your Backyard Woods

Trees provide us with a wide array of wood products. Early settlers built their homes and furniture from trees in their woods. While you might not be quite so ambitious, you can harvest trees from your woods to provide income, or to use directly in your home.

Dennis Haugen

### Goods From the Woods

Firewood, fence posts, sawlogs, and veneer logs are all examples of products that can come from a woodlot of any size.

Firewood—Trees that are dead, crooked, infested with pests, or are crowding out preferred trees are good candidates for the firewood pile. For a long-lasting fire, cut denser broad-leaf trees such as oak, hickory, ash, beech, maple, and birch.

Tom Milton, University of MN Extension Service

*Stack firewood in a sunny, well-drained location 30 feet or more from your house. Cover your pile to keep out rain and snow.*

Fence Posts—In general, it's best to use preservative-treated posts for your projects; however, some tree species naturally resist decay and will make long-lasting posts. Osage-orange, black locust, cedar, cypress, redwood, and white oak are good choices for posts.

Sawlogs—Straight trees larger than 12 inches in diameter can produce lumber. These trees often are referred to as sawtimber and may contain one or more sawlogs. A sawmill can turn these sawlogs into boards.

Roger Bergmeier

*If you need rough sawn lumber for a do-it-yourself project, you can often contract with a portable sawmill operator. A portable mill can be brought right to your woods to saw the logs into boards.*

Veneer—Veneer is a thin sheet of wood that is peeled or sliced from large, straight trees that typically have diameters greater than 20 inches. A veneer-quality broad-leaf tree would have the first 9 feet of the trunk completely free of limbs, branch stubs, wounds, and other defects. Black walnut, sugar maple, and black cherry are all trees prized for their veneer.

Annual growth on U.S. commercial forest land is almost one-and-one-half times the harvest and mortality caused by fire, insects and disease, and other natural causes. Not only are forests growing more wood than we are removing, but the growth of wood is powered by environmentally friendly solar energy. Also, the manufacture of wood products requires significantly less fossil-fuel energy consumption than does the manufacture of substitute products from nonrenewable sources such as steel, plastic, and aluminum.

Other Products—Do-it-yourself projects such as rustic "roundwood" furniture, "pole barns," and trail bridges can often be fashioned from trees cut in backyard woods. Also, local markets often exist for certain wood products. For example, trees for cabin logs are in demand for log homes in selected areas. If you have a paper mill nearby, both broad-leaf and needle-leaf trees may be marketable as pulpwood.

Tom Milton, University of MN Extension

### Marketing Your Products

If you own just a few acres, consider working with neighbors to jointly market your products. When selling timber, seek help from a professional forester who can assist you (and your neighbors) in determining the quantity, quality, and value of products in your woods.

### Did You Know . . . ?

Each year, Americans use more than 600 pounds of paper apiece, plus the lumber equivalent of a 100-foot tall tree.

Harlan Petersen, University of MN Extension

### In the Forest

Owners of large forests, similar to owners of small forests, harvest trees for a range of products such as firewood, posts and poles, lumber and paper products, and veneer. With a trend of declining harvests on public forest lands, demand for forest products from private lands is increasing to keep up with America's wood consumption. Owners of well managed forests employ professional foresters to market products and monitor harvests.

Dennis Haugen

*This pile of 32 foot logs would supply 250 Americans with their paper and lumber needs for one year.*

## Family Activity: Finding Firewood

Include your family when deciding which trees should be cut for firewood. Explain that trees contain energy, which is released as heat when wood burns. Ask what was the original source of the energy that produced the wood (the sun). By using wood for some of your energy, you are deciding to reduce your use of nonrenewable oil, coal, and natural gas. Trees are a renewable (can grow again) energy source; oil, coal, and natural gas are not.

You'll need:

- Brightly colored yarn or flagging tape (available from a forestry supply catalog)
- Flexible tape measure
- Marker

Distribute some brightly colored yarn or flagging tape. Ask the children to help you find trees that measure about 6 to 8 inches in diameter that you may cut down for firewood. (See the earlier description of firewood.) Measure the diameter of trees by making a diameter tape. Take a regular flexible tape measure and make a mark every 3.14 inches (the first mark is "1," the second "2," and so on). Use these marks to measure tree diameter. Place the tape measure around a tree at a height about 4½ feet above the ground. If the tree measures between the "6" and "8" marks that you made on the tape, then the diameter is 6 to 8 inches and the tree would make a good firewood candidate. Mark firewood candidates with flagging tape.

Many people will harvest only fallen trees for firewood. While this saves the complicated step of cutting down a tree, it's not always the best idea for the health of your woods. Decaying trees produce nutrients for remaining plants and trees, and animals need a lot of space, including horizontal space. Still, you may want to consider using some downed wood for firewood.

Finish the day by reading from Aldo Leopold's *A Sand County Almanac*, especially where he describes cutting an old oak for firewood. Such readings can help a child discover his or her own love of the land.

*"Examine each question in terms of what is ethically and esthetically right, as well as what is economically expedient. A thing is right when it stands to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise."*

*Aldo Leopold*

Backyard Woods
*bring your vision to life*

## Development Team

**Northeastern Area Team**

Kathy Anderson
Steve Bratkovich
Gina Childs
Dean Granholm
Dennis Haugen
Teri Heyer
Mike Majeski
Jill Pokorny

**National Association of Conservation Districts Team**

Deb Bogar
Ron Francis
Bill Horvath


## Acknowledgments

A special thank you to the numerous reviewers for their valuable insight and helpful suggestions. The teams are indebted to the following individuals for their assistance in bringing the project to completion: Mary Kroll, booklet writing consultant; Roberta Burzynski, Sandra Fosbroke, and Dan Kincaid, editing; Nancy Lough, Sandra Fosbroke, and Victoria Evans, layout, desktop publication, and production; and Tim Reynolds, photo organization.



The use of trade names or commercial enterprises is for information only. No endorsement by the U.S. Department of Agriculture is implied.

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.


***Cover photo: Miles Ertman, Masterfile***

Any non-cited photo is a Forest Service photo.


Official Citation:
Majeski, Michael; Anderson, Kathy; Bratkovich, Stephen; Childs, Gina; Granholm, Dean; Haugen, Dennis; Heyer, Theresa; Pokorny, Jill. 2005. Backyard Woods. NA-IN-02-05. St. Paul, MN: USDA Forest Service, Northeastern Area State and Private Forestry. 44 p.

## Where to Get Additional Help

Additional in depth information, sources of assistance, and tip sheets for each topic are available at: www.arborday.org/backyardwoods. Listed below are a few of the national organizations you can link to from our Web site.

**National Association of Conservation Districts**
**National Arbor Day Foundation**
**USDA Forest Service**
**National Association of State Foresters**
**American Forest Foundation: National Tree Farm**
**National Woodland Owners Association**
**American Forests**
**National Wildlife Federation's Backyard Habitat Program**
**FIREWISE**
**Cooperative State Research, Education, and Extension Service**
**International Society of Arboriculture**
**USDA Natural Resources Conservation Service**
**USDI Fish & Wildlife Service**

### A Cooperative Project of:

USDA Forest Service
**NORTHEASTERN AREA**
State and Private Forestry

National Association of
Conservation Districts

The National Arbor Day Foundation

www.arborday.org/backyardwoods